

Maxwell's Equations in Matter

- $\operatorname{div} \mathbf{D} = \rho$
- $\operatorname{curl} \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$
- $\operatorname{div} \mathbf{B} = 0$
- $\operatorname{curl} \mathbf{H} = \mathbf{j} + \frac{\partial \mathbf{D}}{\partial t}$

Auxillary Fields:

$$\mathbf{D} = \epsilon_0 \mathbf{E} + \mathbf{P} = \epsilon_0 \epsilon \mathbf{E}$$

$$\mathbf{B} = \mu_0 \mathbf{H} + \mu_0 \mathbf{M} = \mu_0 \mu \mathbf{H}$$